

Opioid Use in Children

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Limited guidance on opioid use exists in the pediatric population, causing medication safety concerns for pain management in children and adolescents. Opioid misuse and use disorder continue to greatly affect adolescents and young adults in the United States, furthering the apprehension of their use. Pediatric Pharmacy Advocacy Group (PPAG) recommends pharmacists contribute their knowledge to pain management in children, including the discussion of appropriate use of non-opioid alternatives for pain and when to recommend coprescribing of naloxone. PPAG also supports the review of electronic prescription drug–monitoring programs prior to opioid prescribing and dispensing by both prescribers and pharmacists. Education by pharmacists of children and their families regarding proper administration, storage, and disposal, as well as the awareness of opioid misuse and use disorder among adolescents and young adults, is key to prevention. If opioid use disorder is diagnosed, PPAG encourages improved access among adolescents to evidence-based medications including methadone, buprenorphine, and naltrexone. Furthermore, pharmacists should assist in screening and referral to evidence-based treatment.

ABBREVIATIONS CDC, Centers for Disease Control and Prevention; PPAG, Pediatric Pharmacy Advocacy Group

KEYWORDS misuse; opioid; Opioid-Related Disorders; Opioid-Related Disorders/prevention and control; pediatrics; pharmacist

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Background

There are currently no general guidelines on opioid usage for analgesia in the pediatric population. The Centers for Disease Control and Prevention (CDC) opioid prescribing guideline for chronic pain states there is limited evidence for children and adolescents, and the population is outside the scope of the guideline.¹ Thus, pediatric practices have largely been adapted from the adult population. Subsequently, medication safety concerns have made prescribing and monitoring opioids in pediatrics challenging. A number of opioids are commercially available, but not all are appropriate for the pediatric population. Fentanyl, morphine, and methadone are opioids used in all ages, including neonates.² Oxycodone and hydromorphone have US Food and Drug Administration–labeled indications for use in those older than 6 months of age.² Hydrocodone is commonly used off-label for patients younger than 2 years.^{2,3} The American Pain Society and the Institute for Safe Medication Practices do not recommend meperidine for pediatric analgesic use owing to the accumulation of a toxic metabolite (normeperidine) that may cause central nervous system toxicity, including seizures. This effect is especially significant in patients with renal dysfunction.^{2,4} The US Food and Drug Administration issued a black box warning for codeine and tramadol in children younger than 12 years and limited use in children between 12

to 18 years of age owing to difficulty breathing and death.⁵ Oxymorphone is not routinely recommended for use in pediatric patients, as it carries a black box warning for respiratory depression and other warnings regarding the high risk of addiction, abuse, misuse, overdose, and death.²

Concerns for opioid use in the pediatric population also arise from the current opioid epidemic in the United States. A recent study observed that legitimate use of opioids among adolescents before high-school graduation is correlated with a 33% increase in the risk of future non-medical opioid use when reaching young adulthood.⁶ As of 2015, the rate of opioid misuse among adolescents in the past year and lifetime was 3.9% and 7.8%, respectively, but this rate was much higher (20.1%) in young adults 18 to 29 years of age.^{7,8} Past month misuse of opioids was reported in 276,000 adolescents, and past year misuse was reported by 17.2% of adolescents who use prescription drugs medically or non-medically in the previous year.⁷ There are additional concerns for non-medical use of opioids, including a strong association with heroin initiation.⁹ Data from the CDC show that deaths involving heroin among adolescents aged 15 to 19 years increased during the 1999–2015 period and was 3 times higher in 2015 (1.0 per 100,000) than in 1999 (0.3 per 100,000).¹⁰ Medication strategies in the home and in practice are essential to curb these trends.

Recommendations

Pharmacists should educate parents and caregivers on safe administration, storage, and disposal of medications. Pharmacists should emphasize that medications should not be shared, and caregivers should always give the medication dose prescribed.¹¹ Storage recommendations should include all medications being out of sight and out of reach of children (e.g., medicine or kitchen cabinet), as well as keeping medications with misuse potential in a more secure location, such as a lock box or medication safe.^{11,12} In addition, pharmacists should communicate the importance of proper disposal of unused and expired medications in the home in order to reduce the risk of children and adolescents having access to prescription drugs, including opioids. The Drug Enforcement Administration periodically hosts National Prescription Drug Take-Back events in local communities.¹³ Additionally, many communities have local drop boxes (www.rxdrugdropbox.org) sponsored by law enforcement for safe disposal of medications. If a medicine take-back program is unavailable, disposal in the household trash is also appropriate for opioids. Pharmacists should instruct to mix unneeded medications with unpalatable substances, such as kitty litter or used coffee grounds, and place them in a container. The container with medications should then be thrown in household trash. All personal information on the original prescription bottle should be scratched out, making it unreadable, prior to disposal.

Pharmacists should empower parents and caregivers to talk with children and adolescents about prescription medication misuse and its consequences.¹¹ Education of prescription drug misuse is a key role for pharmacists to help increase public awareness of misuse dangers.¹⁴ They can also serve as medication experts for families by providing information on the unrecognized risks of opioids, non-opioid options, and guidance on best ways to manage pain.⁶ Furthermore, they should be a resource on prevention strategies for parents, schools, and communities including local governments.^{15–17}

Another role of the pharmacist is to review prescription drug–monitoring programs, electronic databases that contain information regarding controlled substance dispensing.^{18,19} Because these are maintained at a state level, variation exists as to which medications are monitored, how often reporting is required, and how users can access the system.¹⁸ As recommended by the American College of Physicians and the CDC opioid prescribing guidelines, prescribers should be encouraged to review a patient's controlled substance history available through prescription drug–monitoring program data.^{1,20} Some states have implemented laws regarding patient directives banning the use or offering of opioids to that patient, similar to the concept of a Do Not Resuscitate directive.²¹

Opioid, or pain management, stewardship is a rela-

tively new concept that involves focusing on optimizing pain management and presents an opportunity for collaborative drug therapy management. Some hospital systems have developed stewardship programs that focus on inadequate pain management, while others focus on specific opioid medications.²² Regardless of the existence of formal programs, when prescribing opioids for acute pain, use the smallest possible dose and duration. For chronic pain, it is important to schedule follow-up assessments and prescribe a quantity that matches future appointments. Pharmacists may also perform universal opioid use screening, brief intervention or motivational interview techniques, and treatment referrals based on clinical assessment.^{23,24} Evidence-based treatments including methadone, naltrexone, and buprenorphine for youth with opioid use disorder are available, but underused.^{17,25} A recent study found 1 in 4 youth received pharmacotherapy within 6 months of opioid use disorder diagnosis, and the odds for pharmacotherapy were lower in younger, female, and non-Hispanic black and Hispanic patients.²⁶ Pharmacists can advocate for entry into collaborative practice agreements with licensed prescribers to improve access to pharmacotherapy for detoxification and office-based treatment for adolescents, as well as assist in referrals for care.

When appropriate, pharmacists should advocate for non-opioid pain management options, including nonsteroidal anti-inflammatory drugs, acetaminophen, neuropathic pain options (e.g., pregabalin, duloxetine, lidocaine patch), as well as non-pharmacologic modalities (e.g., biofeedback, acupuncture, distraction techniques), all of which have been extensively described in the literature for numerous subtypes of pain.³ Non-opioid options could be considered as independent analgesics for specific types of pain or as adjuncts in multimodal therapy to maximize pain relief, since they may enhance opioid analgesic efficacy. In special pediatric subpopulations, especially hematology and oncology patients, who may require the use of intravenous patient-controlled analgesia, a small dose of naloxone infusion can significantly reduce the incidence and severity of opioid-induced side effects without affecting opioid-induced analgesia.²⁷ Additionally, coprescribing of intranasal or intramuscular naloxone should be recommended for patients receiving chronic opioid therapy who have a history of overdose, a history of substance use disorder, higher opioid dosages (≥ 50 morphine mEq/day), or are receiving concurrent benzodiazepines, based on the current CDC opioid guidelines.¹ To increase universal naloxone access, all 50 states have various legislation for non-patient-specific prescriptions, allowing pharmacists to dispense to individuals and organizations without needing to obtain a prescription from a licensed prescriber.²⁸ The Table presents a summary of these recommendations.

Table. Recommendations of the Pediatric Pharmacy Advocacy Group for Opioid Use in Children and Adolescents

Pharmacists should proactively engage licensed prescribers on the customized selection of opioids and other non-opioid alternatives.

Pharmacists should actively provide education on proper storage, disposal, and administration of prescription opioids to prevent misuse, overdose, or development of opioid use disorder.

Pharmacists should actively engage in education of patients, families, and local communities to increase public awareness of the dangers regarding opioid misuse.

Pharmacists should lead or actively participate in institutional efforts to implement opioid stewardship programs.

Pharmacists should advocate for universal use of electronic prescription drug–monitoring programs by prescribers and “real-time” data submission of opioids dispensed at pharmacies.

Pharmacists should participate in the distribution of naloxone to individuals and organizations that meet state-determined criteria through standing orders, protocol orders, collaborative practice agreements, or pharmacist prescriptive authority.

Pharmacists should actively endorse the American Academy of Pediatrics policy statement to improve access to evidence-based treatment for adolescents and young adults with opioid use disorder and advocate for an expanded role of the pharmacist in detoxification and office-based pharmacotherapy.

Conclusion

Safe use of opioids is vital in children and adolescents. As medication experts, pharmacists are positioned to make a considerable impact on opioid use and safety. Pediatric Pharmacy Advocacy Group (PPAG) recommends pharmacists participate in pain management discussions, including non-opioid alternatives, and provide naloxone recommendations for specific populations. Further roles include reviewing prescription drug–monitoring programs prior to dispensing to help curb trends of misuse. PPAG supports education by pharmacists of proper administration, storage, and disposal in households with children and adolescents, as well as their families’ understanding of the dangers of opioid misuse and use disorder. PPAG also advocates for the improvement of access to evidence-based pharmacotherapy for adolescents with opioid use disorder and for pharmacists to assist facilitation of patient referrals.

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